

10/521 073  
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We claim:

1. A process for preparing a catalyst solid for olefin polymerization by bringing

5 A) at least one organic transition metal compound,

EPO - DG 1

B) at least one organometallic compound of formula (V)

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(76)



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where

M<sup>1</sup> is an alkali metal, an alkaline earth metal or a metal of group 13 of the Periodic Table,

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R<sup>1</sup> is hydrogen, C<sub>1</sub>-C<sub>10</sub>-alkyl, C<sub>6</sub>-C<sub>15</sub>-aryl, halo-C<sub>1</sub>-C<sub>10</sub>-alkyl, halo-C<sub>6</sub>-C<sub>15</sub>-aryl, C<sub>7</sub>-C<sub>40</sub>-arylalkyl, C<sub>7</sub>-C<sub>40</sub>-alkylaryl, C<sub>1</sub>-C<sub>10</sub>-alkoxy or halo-C<sub>7</sub>-C<sub>40</sub>-alkylaryl, halo-C<sub>7</sub>-C<sub>40</sub>-arylalkyl or halo-C<sub>1</sub>-C<sub>10</sub>-alkoxy,

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R<sup>2</sup> and R<sup>3</sup> are each hydrogen, halogen, C<sub>1</sub>-C<sub>10</sub>-alkyl, C<sub>6</sub>-C<sub>15</sub>-aryl, halo-C<sub>1</sub>-C<sub>10</sub>-alkyl, halo-C<sub>6</sub>-C<sub>15</sub>-aryl, C<sub>7</sub>-C<sub>40</sub>-arylalkyl, C<sub>7</sub>-C<sub>40</sub>-alkylaryl, C<sub>1</sub>-C<sub>10</sub>-alkoxy or halo-C<sub>7</sub>-C<sub>40</sub>-alkylaryl, halo-C<sub>7</sub>-C<sub>40</sub>-arylalkyl or halo-C<sub>1</sub>-C<sub>10</sub>-alkoxy,

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r is an integer from 1 to 3

and

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s and t are integers from 0 to 2, where the sum r+s+t corresponds to the valence of M<sup>1</sup>,

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C) at least one organic compound having at least one functional group containing active hydrogen, wherein the functional group is selected from the groups consisting of hydroxyl groups, primary and secondary amino groups, mercapto groups, silanol groups, carboxyl groups, amido groups and imido groups,

D) at least one Lewis base and

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E) at least one support,

into contact with one another, wherein the components are combined in any order without any isolation of an intermediate.

2. A process for preparing a catalyst solid for olefin polymerization as claimed in claim 1,  
5 wherein the component B) used is a mixture of at least two different organometallic compounds.
3. A process for preparing a catalyst solid for olefin polymerization as claimed in claim 2,  
10 wherein the component B) used is a mixture of at least one aluminum-containing organometallic compound and at least one boron-containing organometallic compound.
4. A process for preparing a catalyst solid for olefin polymerization as claimed in claim 2 or 3,  
15 wherein the component B) comprises at least two different aluminum-containing organometallic compounds.
5. A process for preparing a catalyst solid for olefin polymerization as claimed in any of claims  
1 to 4, wherein the functional groups containing active hydrogen of the component C) are hydroxyl groups.
- 20 6. A process for preparing a catalyst solid for olefin polymerization as claimed in claim 5,  
wherein the component C is a compound of formula (VI)



where

- A is an atom of group 13, 14 or 15 of the Periodic Table or a group comprising from 2 to 20 carbon atoms.
- $R^4$  are identical or different and are each, independently of one another, hydrogen, halogen,  $C_1-C_{20}$ -alkyl,  $C_1-C_{20}$ -haloalkyl,  $C_1-C_{10}$ -alkoxy,  $C_6-C_{20}$ -aryl,  $C_6-C_{20}$ -haloaryl,  $C_6-C_{20}$ -aryloxy,  $C_7-C_{40}$ -arylalkyl,  $C_7-C_{40}$ -haloarylalkyl,  $C_7-C_{40}$ -alkylaryl or  $C_7-C_{40}$ -haloalkylaryl or  $R^4$  is an  $OSiR_3^5$  group, where
- $R^5$  are identical or different and are each hydrogen, halogen,  $C_1-C_{20}$ -alkyl,  $C_1-C_{20}$ -haloalkyl,  $C_1-C_{10}$ -alkoxy,  $C_6-C_{20}$ -aryl,  $C_6-C_{20}$ -haloaryl,  $C_6-C_{20}$ -aryloxy,  $C_7-C_{40}$ -arylalkyl,  $C_7-C_{40}$ -haloarylalkyl,  $C_7-C_{40}$ -alkylaryl or  $C_7-C_{40}$ -haloalkylaryl,
- y is at least 1 and
- x is an integer from 0 to 41.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP03/07568

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 C08F110/06 C08F4/642

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	WO 99 06414 A (BOHNEN HANS ;TARGOR GMBH (DE)) 11 February 1999 (1999-02-11) example 7 ---	1-6
Y	WO 99 61488 A (BOHNEN HANS ;GOERES MARKUS (DE); TARGOR GMBH (DE); FRITZE CORNELIA) 2 December 1999 (1999-12-02) examples 2,4,6,8,11-26 ---	1-6
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 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## \* Special categories of cited documents :

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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